

# Online Teaching Quality Monitoring from the Perspective of Quality Assurance

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**Abstract:** *In the special period of "non-stop teaching and non-stop school", colleges and universities generally adopt the form of online teaching. The great value of online teaching form in dealing with emergencies and the obvious advantages of the application of "Internet plus" technology have been or are becoming a normal form of teaching, forming a good complement with offline teaching (or traditional teaching), forming a new ecological environment of classroom teaching. However, online teaching also puts forward new great challenges to teachers and students, which makes both teaching and learning face all kinds of confusion, especially the effect and quality of this teaching form are widely questioned by the society. This paper analyzes the differences between online teaching and traditional teaching, lists the main challenges faced by online teaching, focuses on the teaching quality, summarizes the key elements affecting the teaching effect, and constructs the online course teaching quality monitoring index system on this basis, in order to provide a useful reference for ensuring the online teaching quality.*

**Keywords:** *Online teaching, Teaching quality, Course quality, Monitoring indicators*

Using network resources to carry out online teaching, online learning and other teaching activities to achieve the substantive equivalence between online teaching and offline teaching is a requirement put forward by the Ministry of education in a special period. Inadvertently, the teacher practiced online teaching with a real knife and gun, instead of the online teaching practice of experimental courses, and gradually realized the reference and integration of the application of new technology and traditional teaching practice. Online teaching once became the main position of teaching, so it gave birth to a series of new teaching methods and teaching models, and also became a hot topic in the field of education. The public has put forward unprecedented requirements for online teaching methods, teaching behavior and teaching quality. Online teaching has also been pushed to the forefront. How to build a three foot platform in the cloud, how to build an online "golden class", how to bring ideal learning experience to students, and how to ensure the quality of online teaching have become urgent problems for educators. How to support online teaching and how to improve teaching is a problem worth pondering.

## 1. Main Differences between online Teaching and Traditional Teaching

Online teaching has changed the traditional teaching mode, the integration of the first mock exam, teaching method and Internet. This large-scale application of the mode has complements the shortage of classroom teaching. Online teaching does not simply transfer the physical classroom to the "cloud", which is quite different from traditional teaching (Table 1).

### *1.1 Teachers: the Difference between Face-To-Face Teaching and "Cloud Based" Teaching*

Online teaching is based on the network teaching platform, which provides teaching resources, carries out teaching activities and completes homework assessment. It is difficult for teachers to monitor the students' current learning state and energy investment, and can not adjust the teaching progress and rhythm in time according to the students' learning situation; The traditional teaching takes the physical classroom as the teaching place. Teachers are the leaders throughout the teaching link. In the face-to-face classroom interaction with students, they can timely understand the students' learning status and adjust the teaching rhythm and progress.

### ***1.2 Students: the Difference between Collective Learning and Individual Learning***

Online teaching focuses on individual students receiving online teaching in an independent space, and individual learning behavior not only can not produce the resonance effect of collective learning, but also makes peer education "leave" between students or partners, and learners become unrestrained "free people"; The traditional curriculum focuses on collective learning. As a powerful external force, the learning atmosphere has different degrees of constraints on each student's learning behavior. Peer learning can also effectively make up for the shortcomings of teachers' teaching. In addition, in the form of collective learning, teachers can timely find common problems among students, correct and guide them, and ensure the learning effect of most students.

### ***1.3 Technology: the Difference between Single Multimedia Technology and Network Comprehensive Quality***

Online teaching needs a certain network technology and basic fault handling ability. Teachers are largely the demonstrators of digital citizens. They need to have good network monitoring, data security, digital ethics and other abilities, which can provide students with multi-dimensional technical support and form a good demonstration role of network citizens. The traditional teaching information means mainly rely on a relatively single multimedia technology, which has relatively low requirements for the comprehensive quality of the network.

### ***1.4 Interaction: the Difference between Face-To-Face Communication and Text and Language Mixed Communication***

Online teaching is limited by time and space. It mainly focuses on the interaction of teaching platform, which can not achieve face-to-face communication in time. It mostly carries out teacher-student interaction by means of bullet screen, message and video. Students ask questions online and teachers reply online in their spare time. It is difficult for teachers to reply in time in the process of teaching. Traditional teaching can achieve timely communication between students and teachers, with better response speed and effect.

### ***1.5 Focus on Teaching Management: the Difference between Teachers' Supervision and Students' Self-Management***

Due to the lack of effective monitoring means, online teaching can only rely on students' learning consciousness to achieve the goal of classroom teaching to a great extent. Students' self-management replaces teachers' classroom management, while teachers' classroom management plays a leading role in traditional teaching. Teachers can timely and effectively guide and supervise students' learning and correct bad learning behaviors in time.

*Table 1: Differences between online teaching and traditional teaching*

Difference	Online teaching mode	Traditional teaching mode
Teaching place	Any place relying on the network	Classroom, laboratory, voice room, etc
Teaching method	Nailing, youmu class, lanmoyun class, wisdom tree and other teaching platforms live + recording	Face to face
Communication way	Online message, online Q & A, online video, etc	Face to face communication
Technical support	Need to master certain network technology and have basic troubleshooting services for students; Play the role of digital citizen demonstration; Have good data ethics to protect data security	Single multimedia technology
Teaching assistance	Playback of teaching process	The teaching process cannot be played back
Emphasis on teaching management	Focusing on students' self-management	Focus on Teacher Supervision

## **2. Challenges Posed by online Teaching**

### ***2.1 How to Stand on the "Cloud" Platform and Maximize the Teaching Objectives***

Classroom teaching is the main channel and position to preach, teach and solve doubts. How to carry out online teaching with high quality, build online classroom and ensure the orderly development of teaching work is the most important topic of online teaching. Online teaching is not simply to virtualize the physical classroom, not to move the classroom to the Internet, but to follow the special teaching laws, teach students according to their aptitude and adapt to the course conditions for different disciplines, different courses and different teaching objects, and give full play to the role of online teaching to the greatest extent by relying on the advantages of online teaching. Then, the guarantee of online teaching quality and the formulation of online teaching quality standards have become a hot topic.

### ***2.2 How to Monitor Students' Learning Behavior and Improve Teaching Harvest***

The teaching process is a systematic structure. Teachers are the leaders of the teaching process and the designers of teaching implementation. Whether teachers have good classroom teaching monitoring ability largely determines whether the teaching objectives can be realized and whether the teaching process can be carried out smoothly. Online learning requires students to have a high degree of consciousness. Since teachers and students are located in two places, how to accurately identify students' learning status and carry out targeted teaching is a major challenge for teachers. In online teaching, when students' learning behavior deviates from the learning task, teachers can not correct it in time. Therefore, online learning behavior monitoring has become the key to ensure the quality of online teaching. How to monitor students' learning behavior and achieve teaching effect has become a problem that must be solved in online teaching.

### ***2.3 How to Provide Multidimensional Support and Do a Good Job in the Technical Guarantee of Online Teaching***

First of all, the massive network curriculum resources and various teaching platforms put teachers in a very embarrassing situation. The development of online teaching mainly depends on network curriculum resources and teaching platform, and teaching resources and teaching platform have become the difficult problem for most teachers to choose. Teachers are at a loss whether the diversification of curriculum resources and the function of teaching platform can meet the needs of teaching. Although China has built a large number of high-quality online course resources such as national high-quality online open course projects and MOOC, the quality of other online course resources is uneven; There are many teaching platforms, but the function, interaction and stability of the platform are uneven, which is difficult to meet the needs of teachers and learners. Secondly, online teaching has a certain anxiety for teachers and students. Educators engaged in online teaching should think about how to do a good job in the psychological construction of special groups, strengthen humanistic care, carry out high-quality online teaching and ensure students' sense of online teaching.

### ***2.4 How to Effectively Carry out Teacher-Student Interaction and Make Online Teaching Another "Paradise" of "Heuristic" Teaching***

Harmonious and effective teacher-student interaction is the most important basis of teaching. Only the in-depth communication between teachers and students can make the teaching interaction more active and smooth, which is the secret of online teaching. How to effectively use online interactive platforms such as live classroom to extend the classroom; How to use network gadgets to enhance the attraction of online teaching, guide students to self-study, shorten the distance between teachers and students, and let "one soul awaken another soul".

### ***2.5 How to Create a Healthy Cyberspace and Strengthen Environmental Education***

In network teaching, the teacher is the key, the learner is the center, and the teaching platform and network environment are the foundation. Although online teaching relies on virtual space, the learning experience is real. How to make students experience a better network environment is the basic project of online teaching. There are great regional differences in China. The teaching equipment can not support the operation of the network platform, and the network speed can not meet the needs of live

broadcasting, which fully exposes the shortcomings of China's network environment and ensures the online learning rights of vulnerable groups. Secondly, it is worth exploring how to fill the cyberspace with positive energy, do a good job in ideological guidance, give full play to the role of network media platforms and tools, and create a healthy cyberspace for students.

The above challenges directly affect the quality of online teaching, and directly point to the curriculum and classroom teaching reform of online teaching. Therefore, only by establishing quality standards in line with the reality of online teaching from the two aspects of curriculum and classroom teaching, can the guarantee of online teaching quality be truly implemented.

### **3. Course Quality Monitoring of Online Teaching**

The core of education is curriculum. Only having courses that can preach, teach and solve doubts is the outlet and foundation of online education. In addition to strengthening the construction of online classroom and ensuring teaching order, online teaching should be "considered". In the long run, colleges and universities need to think about how to make full use of online teaching and promote hybrid teaching, Truly create a "learning centered" education model and realize the overall transformation from teaching concept to curriculum design. The concept change from "teaching centered" to "learning centered" puts what students can get from teaching in the primary position of educators' teaching, "learning centered curriculum design", Focusing on "taking students' learning as the center, facing the needs of students' future development, based on a comprehensive analysis of the teaching environment, aiming at promoting students' meaningful learning, taking evaluation and feedback as the traction and active learning as the carrier, so as to change teachers' teaching ideas and improve teaching quality", actively explore taking "learning" as the center and standards first, Explore the quality standards of online teaching courses (Table 2), that is, around seven first-class indicators such as course overview, learning objectives, course content, teaching design, learning support, academic assessment and course evaluation.

#### **3.1 Course Overview**

Clarify the overview of online teaching courses and explain the relevant information of courses to students, including: introducing the course overview and course syllabus; Introduce the course purpose, course content, teaching methods, assessment methods and forms; Explain how to start the course; Explain the leading subject knowledge, skills to be mastered and technical requirements of the course, and provide ways to obtain technical support; Explain the course rules and classroom discipline; Introduce yourself to students and provide contact information.

#### **3.2 Learning Objectives**

Online teaching does not simply translate the physical classroom to the Internet. It should change the course objectives into learning objectives, set the learning objectives as quantifiable objectives from the perspective of students, and disperse the overall learning objectives into the unit learning objectives, so as to connect the learning objectives with the learning task design and its assessment methods. It includes: from the perspective of students, transforming the curriculum learning objectives into indicators that can measure students' learning achievements and abilities; The learning objectives of the course are decomposed into the learning objectives of each chapter of the course and realized in the course design; Explain the relationship between the learning objectives of each unit of the course and each teaching activity.

#### **3.3 Course Content**

Online teaching must provide students with richer and diversified learning contents and promote students to better master the course contents. Including: the course content is consistent with the course objectives; Supplementary learning resources are consistent with teaching materials and teaching contents; Curriculum content and supportive learning resources respect multiculturalism; Any supplementary learning resources shall respect copyright and indicate the source if necessary; Timely update the course content and supplement learning materials to ensure the accuracy of the content.

### 3.4 Instructional Design

The realization of teaching objectives depends on the implementation and design of teaching activities. The teaching activities of online teaching must pay attention to students' participation and help students achieve the curriculum learning objectives. Including: curriculum design should guide students' autonomous learning and self-monitoring; Teaching contents and activities should promote the completion of learning objectives and learning achievements; Encourage students to obtain effective course teaching contents and supplementary resources in a participatory way; Teaching design should pay attention to teacher-student interaction and student student interaction, and feed back students' learning progress and mastery in the form of interaction; Guide students to deeply participate in teaching activities and provide diversified learning paths.

### 3.5 Learning Support

Learning support is not only the guarantee for the normal development of online teaching, but also the basis for the effective implementation of online teaching and online learning. Including: clearly explain the ways in which students can provide technical support and access to online learning; Online technical tools should support the realization of learning objectives and provide a variety of optional technical tools for online teaching to meet the diversified needs of teachers and students; Online tools need to support teachers' teaching process data and information collection and students' process learning records; Online teaching and learning need to ensure information and privacy security.

### 3.6 Academic Assessment

Academic assessment is the embodiment of online teaching effect, the measurement of curriculum learning objectives, and the detection of learning achievements. Including: curriculum assessment can measure whether students achieve the preset learning objectives; Curriculum assessment should pay attention to process assessment, provide multiple opportunities, step by step, and provide diversified assessment methods; Let students know their own learning progress; Clearly explain the rules and evaluation standards of curriculum assessment.

### 3.7 Curriculum Evaluation

Curriculum evaluation is a comprehensive and dynamic process. Curriculum evaluation should be carried out regularly in the process of online teaching as the basis of curriculum improvement and curriculum reform. The curriculum evaluation criteria should include: whether the curriculum content and supplementary resources are updated in time, the cycle of content update and the standardization and scientificity of curriculum content should be included in the assessment of teachers' teaching; Complete the effectiveness evaluation of online courses with the help of student evaluation, supervision evaluation and peer evaluation; The course evaluation method should include the achievement of students' academic goals, students' satisfaction with course teaching, students' effective feedback on online courses, etc., and obtain the effective evaluation of courses through multiple channels and diversification.

Table 2: Online teaching course quality monitoring indicators

Primary index	Secondary index	Indicator description
1. Course Overview	1.1 Course Introduction	Introduce the course overview and syllabus; Introduce the course purpose, course content, teaching methods, assessment methods and forms.
		Explain how to start the course; Explain the leading subject knowledge, skills to be mastered, technical requirements of the course, and provide ways to obtain technical support.
	1.2 classroom discipline	Explain classroom rules and discipline.
	1.3 introduction to teachers	Introduce yourself to students and provide contact information.
2. Learning objectives	2.1 learning objectives	Transform the curriculum learning objectives into indicators that can measure students' learning achievements and abilities; The learning objectives of the course are decomposed into the learning

		objectives of each chapter of the course and realized in the course design; Explain the relationship between the learning objectives of each unit of the course and each teaching activity; The course content is consistent with the course learning objectives.
	2.2 consistency between learning resources and course content	Supplementary learning resources are consistent with teaching materials and teaching contents; Timely update the course content and supplement learning materials to ensure the accuracy of the content.
	2.3 construction of supplementary learning resources	Curriculum content and supportive learning resources respect multiculturalism; Any supplementary learning resources shall respect copyright and indicate the source if necessary.
3. Instructional design	3.1 teaching design	Curriculum design should guide students' autonomous learning and self-monitoring; Teaching contents and activities should promote the completion of learning objectives and learning achievements; Encourage students to obtain effective course teaching contents and supplementary resources in a participatory way; Teaching design should pay attention to teacher-student interaction and student student interaction, and feed back students' learning progress and mastery in the form of interaction; Guide students to deeply participate in teaching activities and provide diversified learning paths.
4. Learning support	4.1 technical support	Clarify the technical support and acquisition methods that students can provide for normal online learning.
	4.2 online teaching tools	Online technology tools should support the realization of learning objectives; Online tools need to support teachers' teaching process data and information collection and students' process learning records.
	4.3 digital ethics	Protect information, data and privacy security.
5. Academic assessment	5.1 process assessment and summary assessment	Pay attention to process assessment, provide multiple opportunities, step by step, and provide diversified assessment methods; Curriculum assessment can measure whether students achieve the expected learning objectives; Clearly explain the rules and evaluation standards of curriculum assessment.
	5.2 self evaluation	Let students know their learning progress.
6. Curriculum evaluation	6.1 course evaluation	Whether the course content and supplementary resources are updated in time; Evaluation of the effectiveness of the curriculum, including student evaluation of teaching, supervision evaluation of teaching and peer evaluation of teaching; Students' achievement of academic goals, students' satisfaction with course teaching, students' effective feedback on online courses, etc.

#### 4. Classroom Quality Monitoring of Online Teaching

Online teaching is a new product. Online teaching in most colleges and universities is still in the exploratory stage, the teaching effect has not reached the level of "efficient, effective and attractive", and the monitoring and quality assurance of online teaching has not formed a complete system. According to the characteristics of diversified online teaching contents, sharing of teaching resources, open teaching process, benefits of teacher-student interaction and cooperation between students, whether effective supervision, evaluation and guidance are carried out around the achievement of teaching resources and teaching objectives, the effect of teacher-student interaction and student-student interaction in teaching activities, and the evaluation of students' learning effect, Taking the two dimensions of teachers' teaching and students' learning, through process evaluation and data-based learning effect evaluation, and taking objective data as quantitative basis, emphasize the organization and teaching effect of teaching process, so as to form an effective online education and teaching evaluation system (Table 3).

Focusing on the achievement degree of teaching effect and the effect of teaching and learning, this paper constructs a "Data-Driven online teaching process evaluation system", and puts forward six teaching quality evaluation indexes of online teaching teachers' professional responsibility, teaching resources, teaching design, teaching ability, students' learning and teaching effect.

#### ***4.1 Professional Responsibility***

The professional responsibility of teachers is the basic guarantee for the quality of online teaching. The professional responsibility should keep pace with the information age and the reform of teaching ideas. The professional responsibility of teachers in online teaching should include: teachers should have good digital morality and become the model of digital citizens; Master the professional knowledge and skills related to online teaching and online learning, and meet the standards of professional teaching; Good time management skills; Have information security awareness and protect the data privacy of students and teachers in an appropriate form; Cultivate students' moral character of digital citizenship, and conduct academic integrity and legal use of the Internet.

#### ***4.2 Teaching Resources***

Teaching resources are the basis for the effective development of online teaching. With curriculum objectives as the core, in order to meet the learning needs of students, organize and arrange teaching resources, and form observation points based on the achievement of teaching contents and curriculum objectives, the expression and presentation of teaching contents, the satisfaction of teaching resources to students' learning needs, and the effectiveness of teaching resources, Monitor whether online teaching resources meet the needs of teaching.

#### ***4.3 Instructional Design***

Teaching design is the key to the quality of online teaching. Based on the teaching characteristics of space-time separation, teaching content and teaching activities are designed, focusing on the clarity of learning objectives, teaching activity design, online learning module integration, homework feedback, etc. Including: constantly adjusting the course content and content presentation in line with the learning objectives; Attract students' input, thinking and application of learning content; The online learning module integrates digital learning resources and a variety of teaching media; Create, organize and complete homework, timely feed back the homework correction, and ensure that the teaching content is related to the learning income.

#### ***4.4 Teaching Ability***

Online teaching teachers conduct digital teaching with the construction of learning community, which puts forward higher requirements for teachers' online teaching, learning community social ability and students' online learning support. Including: accurately measuring students' learning ability through various ways; Teachers use the teaching platform tools to transfer, analyze, demonstrate, communicate and interact knowledge; Master students' learning progress through phased evaluation; Have the basic troubleshooting ability of online teaching and provide technical support for teaching and students; Through the implementation of teaching, monitor students' learning status, encourage students to participate in teaching, cultivate the relationship between teachers and students, and realize effective teaching interaction.

#### ***4.5 Student Learning***

Students are the main body of online teaching. Students' learning activities, participation enthusiasm and learning effect are the basis of online teaching quality evaluation. The software platform is used to identify students' participation in learning, and monitor students' process learning harvest and learning status based on data. Including: Based on the data of teaching platform, considering the investment of students' learning behavior, observing the depth and breadth of learning; Reflect students' learning participation through basic learning data such as classroom interaction frequency, participation in classroom discussion, online homework and online test; Based on the basic data of online teaching as the basis for the process assessment of students; The passing rate of students' phased assessment.

#### ***4.6 Teaching Effect***

In online teaching, students are the main body of teaching and the producer of teaching effect. The evaluation of teaching effect includes two parts: one is to measure students' learning harvest through process evaluation, test and summary evaluation; The second is to realize the monitoring of teaching

quality through three ways: student evaluation of teaching, supervision evaluation of teaching and peer evaluation of teaching.

*Table 3: Evaluation index of online teaching quality*

Primary index	Secondary index	Indicator description
1. Professional responsibility	1.1 digital ethics	Teachers should have good digital morality and become the model of digital citizens; Cultivate students' moral character of digital citizenship, and conduct academic integrity and legal use of the Internet.
	1.2 professional level	Master the professional knowledge and skills related to online teaching and online learning, and meet the standards of professional teaching.
	1.3 time management capability	Good time management skills.
	1.4 information security	Have information security awareness and protect the data privacy of students and teachers in an appropriate form.
2. Teaching resources	2.1 the teaching content is consistent with the course objectives	The teaching content conforms to the realization of teaching objectives; The teaching content is clear, focused and correct; The depth of the course content is compatible with the teaching objectives of the course; The course content permeates the frontier knowledge in the field.
	2.2 expression and presentation of course content	The level of teaching content is clear, the format meets the teaching requirements of the school, the teaching time node is clear, and the teaching content meets the needs of online teaching.
	2.3 quantity of teaching resources	Online teaching resources meet the needs of course syllabus and students' learning needs.
	2.4 effectiveness of teaching resources	Students' download rate and browsing rate of teaching resources indirectly reflect the effectiveness of teaching resources.
3. Instructional design	3.1 design of teaching activities	Constantly adjust the course content and content presentation in line with the learning objectives; Attract students' input, thinking and application of learning content.
	3.2 online learning module integration	Integrate digital learning resources and a variety of teaching and learning media into the online learning module.
	3.3 operation feedback	Create, organize and complete homework, timely feed back the homework correction, and ensure that the teaching content is related to the learning income.
4. Teaching ability	4.1 master students' learning ability	Accurately measure students' learning ability through various ways; Master students' learning progress through phased evaluation.
	4.2 using the platform to carry out teaching	Teachers use the teaching platform tools to transfer, analyze, demonstrate, communicate and interact knowledge.
	4.3 technical support	Have the basic troubleshooting ability of online teaching and provide technical support for teaching and learning.
	4.4 learning monitoring	Through different teaching tools to monitor the learning status of learning, encourage students to participate in teaching, cultivate the relationship between teachers and students, and realize effective teaching interaction.
5. Student learning	5.1 student engagement	Based on the data of teaching platform, consider the investment of students' learning behavior, and observe the depth and breadth of learning; Students' learning participation is reflected through basic learning data such as classroom interaction frequency, participation in classroom discussion, online homework and online test.
	5.2 process assessment	Based on the basic data of online teaching as the basis of students' process assessment; The passing rate of students' phased assessment.
6. Teaching effect evaluation	6.1 students' learning harvest	Measure students' learning gains through process evaluation, test and summary evaluation.
	6.2 tripartite evaluation of teaching	The teaching effect is evaluated through three ways: student evaluation, supervision evaluation and peer evaluation.

## 5. Conclusion

Online teaching is a new development of information technology. Because of its great value to deal with emergencies and the obvious advantages of using Internet plus technology, it has formed good complementary with offline teaching (or traditional teaching), and has constituted a new ecological

environment of classroom teaching. Although it is still in the stage of immature and continuous improvement, and there are still many problems that need to be further explored and studied in terms of teaching philosophy, teaching methods and teaching technology, the quality monitoring of online teaching is undoubtedly a "cow's nose". Instead, it actively explores and develops the quality standards of online teaching, and transforms the quality concept into an observation point of quality, The significance of transforming the value appeal of quality into the operation outline of teaching practice is self-evident.

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